**United States Department of Commerce**

National Oceanic and Atmospheric Administration

Atlantic Oceanographic and Meteorological Laboratory

Physical Oceanography Division

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**Cruise Report AX08 3 November to 1 December 2017**

**AX08 Cruise**

Ship: M/V Maersk Visby

Call Sign: 9V8827

IMO: 9411367

Project Title: Ship of Opportunity Program, High Density XBT Transect AX0

Cruise: Departing Cape Town, South Africa November 4, 2017; Deployment start Cape Town, South Africa November 4, 2017; Arriving Newark, New Jersey, November 29, 2017

Scientific Ship Rider: Matthew Collins

**AX08 Instruments and Deployments**

Expendable Bathythermographs (XBTs) deployed: 515

High Density deployment of XBTs commenced from Cape Town, South Africa (200 meters and deeper) till Newark, New Jersey (reached 200 meter depth).

High Density deployment for this cruise meant launching a probe every 25 kilometers, this translated to every 13.5 nautical miles the vessel travelled. The average speed of the vessel from November 4 – 28, 2017 was 11-12 knots, the average deployment was every 68-72 minutes. The deployments ended at 22:48 GMT of November 28, 2017 when the vessel arrived at 200 meter depth.

The approximate height of deployment from launcher to water line from the Maersk Visby is eight meters.

**Argo Floats: 7 Argo floats deployed**

7434: at 4o S 17o 40.0 W Tuesday 14 November at 01:10 GMT

7435: at 2o S 19o 35.5 W Tuesday 14 November at 15:12 GMT

7439: at 0o 01.30 S 21o 42.0 W Wednesday 15 November at 04:39 GMT

7341: at 2o N 23o 32.1 W Wednesday 15 November at 17:35 GMT

7442: at 4o N 25o 28.0 W Thursday 16 November at 06:47 GMT

7443: at 6o N 27o 25.1 W Thursday 16 November at 22:48 GMT

7449: at 8o N 29o 22.8 W Friday 17 November at 14:48 GMT

All Argo floats were turned on in Cape Town Port on November 3, 2017 under the supervision of Chris Jacobs (seasoned scientific ship rider). We received confirmation that all Argo floats were relaying messages, their bladders were inflating and deflating. All Argo floats were placed back into storage until their deployments, first deployment being November 10, 2017. Each Argo float was taken out of their plastic protective sheet, numbers noted, deployed from the Aft Deck, manually lowered (approximately 8 meters) to the water line using rope, care was taken to not deploy into the direct wake of the vessel. I used bowlines to secure the rope to the provided slings on the instrument’s package. All packages were successfully deployed with slings and releases recovered.

Deployment information and Argo Float Deployment Reports were emailed to

deploymentinfor@whoi.edu; aoml.argo@noaa.gov; probbins@whoi.edu; cahearn@whoi.edu; and

Zach.Barton@noaa.gov.

**Issues and problems:**

1) Primary Autolauncher (ALR03) tube 1 stopped working on 11 November and remained an issue for the entire trip. It was swapped out for ALR06 on this day.

2) MK21 error on Nov 13. It could check tubes correctly, but an error popped up. Primary and secondary MK21 both had the same error. Error occurred during self I/O test. This caused a delay with launches in the afternoon. Nothing was wrong in the settings (MK21 type). Re-starting the laptop and

checking connections multiple times solved the problem.

3) Welding on ship coincided with no splach detection (once on 15th, twice on 16th).

4) Error 2 and 3 were fixed by replacing autolauncher ALR06 with ALR03 after the no splash detection got worse and persisted on Nov 19th. It was causing the MK21 error and the no splash detection error. The worsening of the problem caused a halt of launches for 4 hours in the morning (05:00 to ~ 09:00).

5) General grounding issues throughout the trip. While setting up, we were not able to place the grounding wire behind a screw in the window as the screws were too worn to work with. I used tape but it occasionally fell off. The issues were corrected by fixing the tape and then performing another launch after the erroneous one.

6) Amverseas occasionally lost GPS signal (mostly at night). A restart was all that was needed to fix it.

Additional Supplies

Cable ties and tape are needed, as always.

The smaller craft knife broke apart during this cruise, but the two larger ones are still in working order.